REMARKS/ARGUMENTS

Claims 1, 4-5, 6-7 and 9 stand rejected under 35 U.S.C. 102(e) as being anticipated by Bardman et al. (U.S. 2003/0018103) (hereinafter "Bardman"). For the reasons set forth hereinafter, it is requested that the Examiner reconsider and withdraw this rejection.

Claim 1, as amended herein, recites a titanium oxide complex, comprising: a polymer-based material having an active group; and titanium oxide having a reactive functional group which is capable of reacting with the active group, wherein the active group and the reactive functional group are directly bonded to each other based on a chemical bond, and the reactive functional group is an amino group, and the chemical bond is an amido bond.

Claim 6, as amended herein, recites a titanium oxide complex, comprising: a hydroxyl group contained in titanium oxide; and a polymer-based material having a functional group which is capable of chemically bonding to the hydroxyl group, wherein the hydroxyl group and the polymer-based material are directly bonded to each other based on a chemical bond, and the functional group is an alkoxysilyl group.

In order to provide a titanium oxide complex in which titanium oxide firmly bonds to a surface of a polymer-based material in a simple manner without deteriorating essential properties of the titanium oxide and the polymer-based material, the titanium oxide complex according to the present invention is characterized in that the titanium oxide and the polymer-based material are bonded to each other based on a chemical bond.

In contrast, Bardman fails to disclose a titanium oxide complex in which the polymer-based material having the active group and the titanium oxide having the amino group are directly bonded to each other based on the amido bond. Accordingly, Bardman clearly fails to anticipate or render obvious the recitations of claim 1, as amended herein, and dependent claims

3-5.

Bardman also fails to disclose the titanium oxide complex in which the hydroxyl group of the titanium oxide and the polymer-based material having the alkoxysilyl group being directly bonded to each other based on a chemical bond. Thus, Bardman clearly fails to anticipate or to render obvious the recitations of claim 6, as amended herein, and dependent claims 8 and 9.

For the foregoing reasons, it is apparent that the teachings of Bardman do not support the Examiner's rejection of claims 1, 4-5, 6-7 and 9 under 35 U.S.C. §102(e).

Claims 1, 4-5, 6 and 9 stand rejected under 35 U.S.C. §102(e) as being anticipated by JP 2002331028 (hereinafter "JP'028"). For the reasons set forth hereinafter, it is requested that the Examiner reconsider and withdraw this rejection.

First, it is noted that JP'028 is a Japanese unexamined patent application that was filed on May 10, 2001 and published on November 19, 2002. Since this Japanese patent application is not an application for patent, published under §122(b) by another filed in the U.S. or an international application filed under the treaty defined in §351(a) that designated the United States and was published in the English language, the Japanese application does not fall within the purview of 35 U.S.C. 102(e). Accordingly, JP'028 is not available as a reference under 35 U.S.C. 102(e). See section 2136 of the Manual of Patent Examining Procedure.

Second, JP'028 clearly fails to anticipate or to render obvious the recitations of claims 1, 4-5, 6 and 9, as amended herein. JP'028 discloses a medical tube comprising an elastomer tube material whose surface is treated with acid wherein a surface of the resulting tube is coated with a photocatalyst layer including titanium oxide particles each having an antibacterial metal on its surface (see claim 9 for example). Further, JP'028 describes a dip coating treatment or a spraying treatment that is adopted in coating the tube material with the photocatalyst layer including

titanium oxide (see paragraph [0022]).

In the case of adopting the dip coating treatment, the tube material and the photocatalyst layer including titanium oxide are merely physically adsorbed to each other, and hence the tube material and the photocatalyst layer are not bonded to each other based on a chemical bond. Also, the surface of the tube material is treated with acid, but this treatment is to realize firmer physical adsorption by making the surface of the tube rough with acid, so that this treatment is not for the purpose of a chemical bond.

Thus, JP'028 neither discloses nor suggests the feature recited in amended claim 1, i.e., "a titanium oxide complex, comprising: a polymer-based material having an active group; and titanium oxide having a reactive functional group which is capable of reacting with the active group, wherein the active group and the reactive functional group are directly bonded to each other based on a chemical bond".

Further, JP'028 neither discloses nor suggests the additional recitations in amended claim 1, i.e., "titanium oxide having an amino group" and "a polymer-based material having an active group and titanium oxide are directly bonded to each other based on an amido bond".

Accordingly, claim 1 and dependent claims 3-5 are clearly allowable over the teachings of JP'028.

JP'028 neither discloses nor suggests the recitation of amended claim 6, i.e., "a titanium oxide complex, comprising: a hydroxyl group contained in titanium oxide; and a polymer-based material having a functional group which is capable of chemically bonding to the hydroxyl group, wherein the hydroxyl group and the polymer-based material are directly bonded to each other based on a chemical bond". Further, JP'028 neither discloses nor suggests the additional recitation in amended claim 6, i.e., the "polymer-based material having an alkoxysilyl group".

Accordingly, claim 6 and dependent claims 8 and 9 are clearly allowable over the teachings of JP'028.

Claim 2 stands rejected under 35 U.S.C. 103(a) as being unpatentable over JP'028 in view of Gagliardi (U.S. 3,547,688). The recitations of cancelled claim 2 are now in amended claim 1. It is submitted that claim 1 is not rendered obvious by the teachings of JP'028 for the reasons already set forth herein. Gagliardi has been cited for its teaching of incorporating complex salts of silver with amido groups into plastic medical devices for antibacterial effects. Other than this limited disclosure, Gagliardi clearly fails to supply the deficiencies of JP'028 with respect to the novel recitations of claim 1 as amended herein.

Claim 7 stands rejected under 35 U.S.C. 103(a) as being unpatentable over JP'028 in view of JP 402109570 A (hereinafter "JP'570"). Claim 7 has been cancelled in the present amendment.

Claim 3 stands rejected under 35 U.S.C. 103(a) as being unpatentable over JP'028 in view of Sheldon (U.S. 3,021,834). Claim 3 depends from claim 1 and thus is believed to be allowable over JP'028 for the reasons already set forth herein with respect to claim 1. The Sheldon reference has been cited merely for the teaching that silicone rubber is a material that can be employed in parts of medical devices. Other than this limited disclosure, Sheldon clearly fails to supply the deficiencies of JP'028 with respect to the novel recitations in claim 3.

Claim 7 stands rejected under 35 U.S.C. 103(a) as being unpatentable over JP'028. Claim 7 has been cancelled in the present amendment.

In view of the above amendments and remarks, it is submitted that claims 1, 3-5, 6, 8 and 9 as amended herein, are clearly allowable to applicants, and formal allowance thereof is earnestly solicited.

Respectfully submitted,

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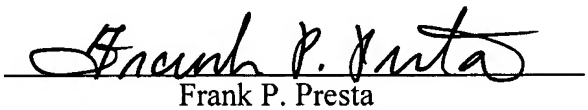
By: 

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